

CP Series Pressure Sensors for CPAP, BiPAP and APAP Applications

Superior Sensor's CP series combines two pressure sensors in one device creating a pressure sensor subsystem for sleep apnea applications



Superior's CP Series sensor module family builds upon the industry's performance leading SP Series *NimbleSense*™ architecture. For reference, the SP Series integrates an advanced piezoresistive sensing element, ADC, DSP and processor intelligence. The CP Series is a true sub-system that integrates two types of pressure sensors (Differential & Gage). With the industry's best performance, highest integration and lower system BOM, the CP Series is the ideal solution for Sleep Apnea applications.

The CP Series measures dry air and non-aggressive gas pressure with very high accuracy and a stable zero point. Non-linearity is also industry leading and typically within $\pm 0.15\%$ of selected range. The CP Series employs the proprietary *NimbleSense*™ architecture to create the industry's widest dynamic range and highest performing products supporting ranges as low as ± 250 Pa for the differential pressure sensor to as high as $\pm 6k$ Pa for the gage pressure sensor. Competing solutions degrade as the pressure ranges are lowered; but the CP Series with Multi-Range capability maintains optimal performance down to even ± 250 Pa.

Optional advanced filtering –With advanced filtering to remove unwanted noise from the fan output, noise induced mixing errors are virtually eliminated.

Features

- Dual-sensor air flow controller sub-system designed for BiPAP, APAP and CPAP machines
- Highly Integrated, combining two pressure sensors in one device: differential and gage
- Multi-Range™ – 4 calibrated ranges per sensor
- CP Series Subsystem Enables Selectable:
 - Differential Range (± 250 Pa to $\pm 2.5k$ Pa)
 - Gage Range ($\pm 2k$ Pa to $\pm 6k$ Pa)
 - Bandwidth (25Hz to 250Hz)
- 16-bit resolution each channel range
- Ultra low noise, 17.5-bit Effective Resolution
- Very High Accuracy $\pm 0.05\%$ of Selected Range
- Excellent Long Term Stability
- Output Update Rate up to 500Hz
- Temperature Compensated 5°C to 50°C
- Supply Voltage Compensation
- Standard I2C and SPI Interface
- Advanced multi-order filter to eliminate critical fan output noise (OPTIONAL)

Applications

- Sleep apnea
- COPD
- Asthma
- Home ventilators
- CPAP
- BiPAP
- APAP